

Acacia derwentiana (Mimosaceae), a new species from southern Tasmania

A. M. Gray

Tasmanian Herbarium, Private Bag 4, Hobart, Tasmania 7001 Australia.

Abstract

Acacia derwentiana A.M.Gray, from the lower River Derwent catchment and two smaller eastern river systems, the Carlton and the Prosser, is newly described and illustrated, together with notes on its distribution, affinities and ecology.

Introduction

Landcare and revegetation projects in the lower Derwent River catchment during the late 1980s and 1990s promoted a high level of interest in the remnant natural vegetation resources of the valley. The present author was involved in a number of Landcare projects through the Greening Australia (Tasmania) organisation. In liaison with Mr Andrew Lawson, then Co-ordinator of The Upper Derwent Valley Landcare Group, investigations were made into reports of an *Acacia* species, thought to be *A. axillaris* Benth., from the valley of the River Clyde, a tributary of the Derwent. Hitherto that species had been recorded from a few catchments well to the north-east of the Derwent. This identity was subsequently verified. During the study a rather more pendulous form of what was also thought to be the species, or the closely related *A. riceana* Hensl., was noted from along the banks of the Derwent, the Clyde and other tributaries in the catchment. Further collections and comparisons with *A. axillaris* and *A. riceana* revealed significant distinctions between the three entities.

Coincidentally, a Hobart horticulturalist had propagated material of the novelty and has applied the cultivar name "Acacia Derwent Cascade" in reference to its pendulous habit and the locality of its collection, on the River Derwent, adjacent to a series of shallow cascades.

This discovery brings the number of indigenous species of *Acacia* found in Tasmania to 21, with four of these, i.e. *A. riceana*, *A. axillaris*, *A. pataczekii* D.I.Morris and *A. derwentiana* A.M.Gray, being endemic in the State.

Taxonomy

Acacia derwentiana A.M.Gray, *sp. nov.*

Ab *Acacia riceana* Hensl. phyllodiis non fasciculatis, alternis, late dispersis, ramis ultimatis penultimatisque, arctuatis vel interdum pendentibus incidentibus, et ab *Acacia axillare* Benth. inflorescentiis vulgo binatis, pedunculatis, elongato-cylindricis, 5–8(–15) flosculos in capitulis singularibus, sessilibus, compactis differt.

Type: Tasmania, River Derwent, 3 km west of the Plenty River Bridge, Plenty, 42° 43' S, 146° 55' E, 26 ix 2000, G. Kautvilas and J. Jarman s.n. (holotypus HO 516628; isotypes MEL, NSW). Figure 1.

A small to medium *shrub*, 1–3(–5) m high, usually multi-branched from the base or with a short trunk, the branches semi-spreading to sub-erect, becoming very slender, arching and pendulous towards their extremities. Ultimate branchlets soft and often bronze to reddish in colour, older branchlets and smaller branches finely ridged, striated greyish to brown with appressed fine hairs, lenticellular. Canopy dark green and dense lower down, but rather more open in the upper parts. *Phyllodes* alternate, distantly

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MIMOSACEAE

Acacia derwentiana A.M. Gray

Derwent River, W of Plenty

42°41' S 148°35' E Grid: TYE 937 688

Elevation: 1

Altitude: 20 m.

G. Kanivas S.J. Jarman 20 Sep 2000

Riverbank, disturbed scrubby vegetation with willows

Notes: **HOLOTYPE**

Dupl. ex: Dupl. sent to:

Det: A.M. Gray Years: 2004 Prior:

Figure 1: Type sheet of *Acacia derwentiana* A.M.Gray.

dispersed on the slender terminal branches, rather more crowded on the lower branches and on shorter axillary branchlets, usually borne singly at the nodes, never tightly clustered, linear to very narrowly elliptic, straight to slightly curved, 20–35(–65) mm long, 1–2(–2.5) mm wide (L:B ratio 12–20(–40):1); face of phyllode with three longitudinal veins, the central vein the most prominent, the two lateral veins sometimes obscure or apparently interrupted, anastomosing veins not visible; apex acute-acuminate, pungent; base gradually narrowed to a very short pulvinus, 0.5–1.0 mm long; gland on the adaxial margin minute, often absent, narrowly oval and seldom raised more than 1 mm above the margin. *Inflorescence* a loose cylindrical spike, 5–10–25 mm long on a peduncle (3–)5–8 mm long, single or, more usually, paired in the axils of the upper phyllodes; flowers 5–8(–15) per spike, confined to the upper half to two thirds of the floral axis, not crowded, the rachis usually visible between each flower. Sepals 4, united, light brown, the margins ciliate; petals 4, free, spreading, the lobes strongly recurved at anthesis; stamens pale yellow to almost lemon yellow. *Pod* linear, curved, irregularly constricted between the seeds, dark brown, 25–35(–50) mm long, 2–4 mm wide; seeds dark brown, lustrous, ellipsoid, arilate, the aril much folded, compressed, triangular, surmounting but not surrounding the seed. Flowering period: Oct.–Dec.

Additional specimens examined (all HO): TASMANIA: Sally Peak Rd, Buckland, “bank of rivulet”, 42° 37' S, 147° 43' E, *M. Allan*, 17 Mar. 1974 (42627); South bank of the River Derwent, near mouth of Glenfern Ck, 42° 45' S, 146° 59' E, *A. M. Buchanan* 1239, 20 Oct. 1983; Brushy Plains



Figure 2: Details of phyllode arrangements and inflorescences on ultimate branchlets of a: *A. derwentiana*, b: *A. riceana* and c: *A. axillaris* (all $\times 0.5$).

Rivulet., Buckland, 42° 37' S, 147° 43' E, *A. M. Buchanan* 13288, 10 Mar. 1993; Derwent River, near Triffits Neck, 42° 42' S, 146° 55' E, *A. M. Buchanan* 13551, 21 Feb. 1994; Tea Tree Rivulet, 42° 40' S, 147° 47' E, *P. Collier* 2700, 5 Sept. 1987; Repulse River, near Ouse, 42° 30' S, 146° 37' E, *P. Collier* 4091, 17 Sept. 1989; Broad River, near Cluny Lagoon, 42° 31' S, 146° 39' E, *P. Collier* 4259, 8 Oct. 1989; Bank of River Derwent, "Rylands", 42° 42' S, 146° 55' E, *A. M. Gray* 860, 13 Sept. 1998; Dawson Rd crossing, Broad River, 42° 30' S, 146° 40' E, *A.M. Gray* 918, 02 Jan. 1999; River Derwent, west bank, just S. of railway bridge, 42° 45' S, 146° 59' E, *A.M. Gray* 956, 958, 28 Apr. 1999; Tyenna River, Mill Lodge, 42° 41' S, 146° 50' E, *A. M. Gray* 962, 963, 28 Apr. 1999; Dawson Rd, near confluence of Broad River and Cluny Lagoon, 42° 31' S, 146° 39' E, *A. M. Gray* 1102, 10 May 2001; Cascades, Hobart, 42° 54' S, 147° 17' E, *L. Rodway*, Oct. 1889 (8778).

Notes: *Acacia derwentiana* superficially resembles both *A. axillaris* and *A. riceana*. *Acacia derwentiana* may be distinguished from *A. riceana* by the arrangement of the ultimate lateral branchlets and the presentation of the phyllodes.

In *A. riceana*, the ultimate lateral branchlets are usually < 5 mm in length, manifestly longitudinally compressed and the phyllodes borne thereupon appearing to be fasciculate or tightly bunched. As the branchlets mature, some may elongate as the internodes lengthen and other new axillary branchlets develop on these. A large proportion of the lateral branchlets do not lengthen as maturation proceeds but remain with the phyllodes tightly bunched, even on branches 3 years old or more.

In *A. derwentiana* and *A. axillaris*, the phyllodes are borne singly and well separated from one another; some new branchlets may have the phyllodes loosely clustered but never distinctly and consistently *fasciculate* as in *A. riceana* (see Fig. 2). As the branchlets mature, all internodes progressively lengthen and the phyllodes do not persist in clusters.

In *A. riceana*, the phyllode length to width ratio is within the range of c.10(–12):1, whereas in *A. derwentiana* it is c. 12–20(–40):1, and in *A. axillaris* the ratio is c. 15–25(–35):1.

Key to the *A. riceana* group:

1. Flowers 2–3(–5), crowded together in a single spherical head, 3–5 mm long; peduncle 1–3 mm long *A. axillaris*
- 1: Flowers (5–)8–15, usually in paired spikes; flowers widely dispersed along the distal 1/2 – 2/3 of the inflorescence, the rachis usually visible between the flowers; spike 8–25 mm long; peduncle 5–8 mm long 2
2. Phyllode length:width ratio 10(–12):1; phyllodes crowded together in groups of 3–6(–10), on lateral shoots and tightly clustered as to appear fasciculate; the majority of lateral shoots seldom lengthening *A. riceana*
- 2: Phyllode length:width ratio 12–20(–40):1; phyllodes usually well dispersed, seldom formed on very short lateral branchlets; the branchlets soon lengthening *A. derwentiana*

Discussion: In Court's (2001) treatment, he concludes that "the differences between *A. axillaris* and *A. riceana* are not pronounced but these taxa are here retained as different species". Court cites the relative dimensions of the inflorescences as the main character separating the two taxa, but makes no mention of the different arrangement of the phyllodes in each species, one of the more obvious differences, particularly when examined in the field as well as in herbarium specimens.

The habit of the two species does appear to differ, as Court also points out, *A. axillaris* being more or less erect compared with the often pendulous or arching younger branches of *A. riceana*. However, this pendulous habit is also a feature of *A. derwentiana*, but the widely spaced, non-clustered phyllodes of the latter species gives it quite a distinctive appearance in situ.

Although the three species are apparently closely related, each can be differentiated by a combination of reproductive and vegetative characters, which enable them to be separated with little confusion either in the field or the herbarium. Although populations of each taxon occur in the same geographical regions, none are known to be sympatric. For these reasons, the present author prefers to recognise three distinct taxa at specific level, rather than at sub-specific or varietal ranking.

Distribution and ecology: *Acacia derwentiana* is largely confined to the banks of the River Derwent, and some of its lower tributaries; it also occurs, infrequently, along the Carlton and Prosser Rivers and their tributaries. It is seldom encountered any further than 25 to 50 m from a river's edge and is more likely found within 5 m of the water's edge.

The species is a component of the humid corridor, mixed-species shrubberies along river banks, however it may also occur in riparian native grasslands and/or sedgeland. See distribution map in Figure 3.

Conservation status: Many of the riparian habitats favoured by this species are now much degraded and support a wide spectrum of introduced weed species, particularly the Crack Willow, *Salix fragilis* L. var. *fragilis*, and Blackberry, *Rubus fruticosus* L. It is apparently palatable to stock and may be severely grazed where cattle, in particular, have access to river banks.

Riparian habitats are prone to seasonal erosion or large-scale destruction during major flood episodes. These habitats are also increasingly subject to invasive weed threats, the

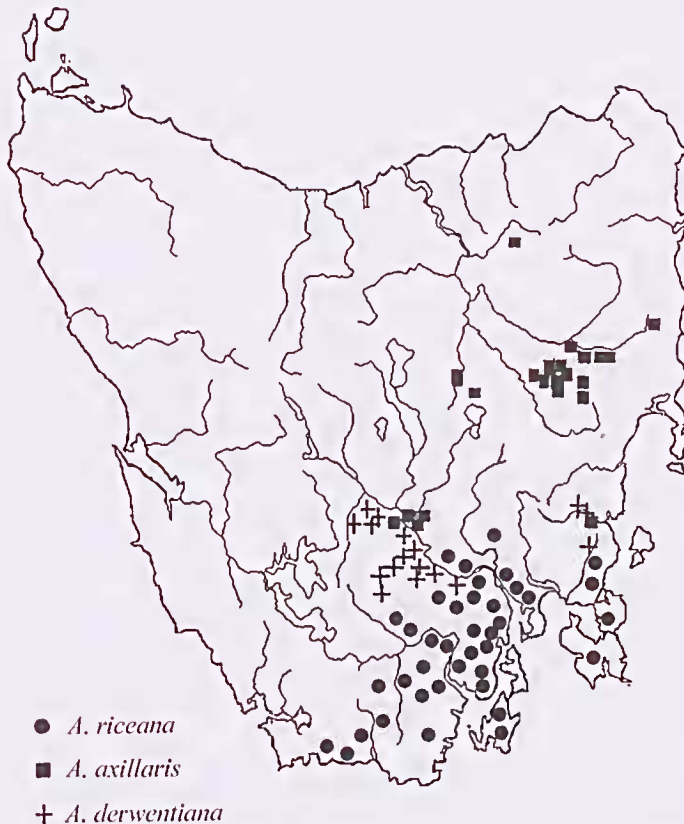


Figure 3: Geographical distribution of the *A. riceana* group as known from herbarium specimens.

control or eradication procedures for which may compromise associated natural vegetation. For these reasons this taxon may satisfy the criteria to be listed as *vulnerable* on the schedules of the *Tasmanian Threatened Species Protection Act 1995*.

Etymology: The specific name *derwentiana* is indicative of the species almost being confined to the catchment of the River Derwent in south-eastern Tasmania.

Acknowledgements

I thank Dr Gintaras Kantvilas, (Head of HO) for the Latin diagnosis, and help with the manuscript. Dr Marco Duretto (HO) also offered useful criticism and help with the manuscript. My thanks also to Mr Matthew Baker and Kim Hill (HO) for their assistance with the production of the manuscript and the figures. I also offer my thanks to Mr Andrew Lawson for his interest during the early stages of the investigation of this new species, and to Mr Tim Parsons for locating and guiding me to occurrences of the species on his property "Curringa".

References

Court, A.B. (2001). *The Flora of Australia* IIB, pp 386-387. Australian Biological Resources Study, Canberra/CSIRO Publishing, Melbourne.